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EXAMINER

MULLIS, J

ART UNIT

PAPER NUMBER

12M2/0525

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1207

DATE MAILED:

05/25/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 39-74 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. ☒ Claims 1-38 have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 39-74 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Serial No. 367370

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Art Unit 1503

Claims 39-74 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear whether claim 39 is reciting a mixture of hydroxycarboxylic acid or if the hydroxy carboxylic acid is only present in reacted form in the polyester.

The hydroxycaproic acid of claim 55 has no antecedent basis in claim 40.

It is not clear if claim 39 is intended to embrace copolymers. If so the copolymers embraced are unclear since the comonomers are not recited.

It is not clear what a C_2 to C_8 starch ester might embrace. Presumably " C_2 to C_8 " refers to the number of carbons in the carboxylic acid residue but this is not clear.

It is unclear what is embraced by the "two different starch esters" of claim 48 in that starch ester samples would be expected to be present as a range of molecular weights and degrees of substitution and can therefore be viewed as a mixture of an infinite number of starch esters. The phrase "two different starch esters" is therefore unclear when it is not recited what constitutes a difference, i.e. are the starch esters different in the homolog of acid they contain etc.?

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Art Unit 1503

The term "derived" is unclear in that it cannot objectively be determined all processes from which a material can be derived from another.

Enantholactone
The term "enantholactone" is not art recognized as recited in claim 56.

It is not clear what is intended by the word "plastifying".
This word is not art recognized.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 39-74 are rejected under 35 U.S.C. § 103 as being unpatentable over Whistler et al., Ind. Eng. Chem. 38, 796 (1944) in view of Lotti (Polymer Bulletin Article cited by applicants) and Wolff et al. (Ind. and Eng. Article "Mixed Esters of

Amylose", 1957, cited by applicants, Lipinsky (WO 92/20738), Elion (USP 5,205,863) Lay et al. (USP 5,095,054) Buchanan (WO 92/09654) and (Klug USP 3,117,014), Fordye et al. (Ind. Eng. Chem. 1053-1060 (1960)).

Whistler et al. disclose plasticized amylose triacetate films. Note the abstract. Whistler disclose that plasticizers which function for cellulose acetate generally function for amylose acetate. Note the first complete paragraph in the second column on page 798. Although Whistler does not specifically disclose that 2 different amylose esters may be used, amylose acetate would be expected to have a range of DS and molecular weight and could therefore be considered to be a mixture of amylose esters.

Whistler does not disclose that poly(lactones) may be added to his composition, that mixed cellulose esters may be used as the acetate of cellulose, that caprolactone may be added to his composition, that DS may be about 1.8 to about 2.5 or that polyester derived from a diol and a diacid may be added or that hydrophobic polymers may be added to his composition.

Lotti discloses that poly(3-hydroxybutyrate-co-3-hydroxyvalerate; PHBV) acts as a plasticizer for cellulose esters. Note the first paragraph under "conclusion."

Wolff et al. ("Wolff") discloses that mixed acetyl esters of amylose such as acetyl-propionate or butyrate are more plastic than amylose acetate. Note the first paragraph under "film characteristic".

Lippinsky discloses that cyclic esters such as caprolactone (page 6, structure #7) or oligomers of cyclic esters (page 4, lines 17-25) act as degradation promoters or plasticizer (sentence bridging pages 2 and 3) for cellulose esters (abstract). *Flow*

Elion discloses a starch acetate molding composition which may have an acetyl substitution of 30-55% at column 6, lines 48-50.

Lay et al. discloses that the dimensional stability of starch may be improved by addition of a hydrophobic polymer (column 3, lines 13-21).

Buchanan discloses that polyesters derived from a diacid and diol act as plasticizers for cellulose ester compositions. Note page 74, lines 1-5.

Klug disclose that the workable range for starch ester molding composition is about 1.5 to about 2. Note the paragraph bridging columns 6 and 7. *no*

Fordyce disclose that ethyl toluene sulfonamide plasticizer cellulose esters. Note Table III.

Since Whistler disclose that plasticizers which are functional for cellulose esters are functional for starch esters it would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention to add the poly(lactones) of either Lotti or Lipinsky or the polyesters of Buchanan or Lipinsky to Whistlers' composition in the expectation of obtaining the benefit of plasticization and additionally in the expectation that the benefit of a biodegradable composition would result (such benefits disclosed by Lotti, Lipinsky and Buchanan) or to add the ethyl toluene sulfonamide of Fordyce to obtain the benefit of plasticization, absent any showing of surprising or unexpected results.

It would have been obvious to a practitioner to use amylose acetate butyrate or propionate in the composition of Whistler instead of amylose acetate as taught by Wolff in the expectation of obtaining the benefit of greater plasticity and less curling of films produced therefrom, absent any show of surprising or unexpected results.

To adjust the cellulose esters of Whistler to an acetyl content of 30-55% as taught by Elion or to about 1.5 to about to as taught by Klug would have been obvious to a practitioner in the reasonable expectation that such a range was at least as workable as that of Whistlers', absent any show of surprising or unexpected results.

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Art Unit 1503

It would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention to add the hydrophobic polymers of Lay et al. to the composition of Whistler in the expectation of obtaining the benefit of greater dimensional stability, absent any show of surprising or unexpected results.

Mullis/mm
May 10, 1995
May 18, 1995

JEFFREY MULLIS, PH.D.
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